

We claim:

1. A reactor and heat exchanger cooler assembly which is comprised of a tubular reactor having an inlet head and an outlet head, reaction tubes packed with catalyst within said reactor supported by an inlet end tube sheet and an outlet end tube sheet, a tubular heat exchanger integrally affixed to said outlet head sheet, said outlet head sheet having an opening for the passage of the reaction gas mixture from the reactor to said exchanger and through tubes in said heat exchanger whereby said reaction gases are cooled by indirect heat exchange with a heat exchange fluid introduced into said heat exchanger.
2. The assembly of claim 1 wherein means are provided for cooling the tubes in both the reactor and the heat exchanger with water.
3. The assembly of claim 1 wherein the reactor is packed with a supported silver catalyst.